

INFECTIOUS DISEASES IN SOUTH DAKOTA 2005

The South Dakota Department of Health (DOH) is authorized by South Dakota Codified Law 34-22-12 and Administrative Rules Article 44:20 to receive and process mandatory reports of communicable diseases by physicians, hospitals, laboratories, and institutions.

Category I: Report immediately on suspicion of disease	Category II: Report within 3 days
<p>Anthrax (<i>Bacillus anthracis</i>) Botulism (<i>Clostridium botulinum</i>) Cholera (<i>Vibrio cholerae</i>) Diphtheria (<i>Corynebacterium diphtheriae</i>) Enterohemorrhagic <i>E. coli</i> (EHEC) shiga-toxin producing (<i>Escherichia coli</i>), includes <i>E. coli</i> O157:H7 Measles (<i>paramyxovirus</i>) Meningococcal disease, invasive (<i>Neisseria meningitidis</i>) Pertussis (<i>Bordetella pertussis</i>) Plague (<i>Yersinia pestis</i>) Polio myelitis (<i>picornavirus</i>) Rabies, human and animal (<i>rhabdovirus</i>) Ricin toxin Rubella and congenital rubella syndrome (<i>togavirus</i>) SARS (Severe Acute Respiratory Syndrome, <i>coronavirus</i>) Smallpox (<i>Variola</i>) Tularemia (<i>Francisella tularensis</i>) Typhoid (<i>Salmonella typhi</i>) Viral Hemorrhagic Fevers (filoviruses, arenaviruses)</p> <p>Outbreaks: - Acute upper respiratory illness - Diarrheal disease - Foodborne - Illnesses in child care settings - Nosocomial - Rash illness - Waterborne</p> <p>Syndromes suggestive of bioterrorism and other public health threats Unexplained illnesses or deaths in humans or animals</p>	<p>Acquired immunodeficiency syndrome (AIDS) Arboviral encephalitis, meningitis and infection (<i>West Nile, St. Louis, Eastern and Western equine, California serotype, Japanese, Powassan</i>) Brucellosis (<i>Brucella</i> spp.) Campylobacteriosis (<i>Campylobacter</i> spp.) Chancroid (<i>Haemophilus ducreyi</i>) Chicken pox/Varicella (<i>herpesvirus</i>) Chlamydia infections (<i>Chlamydia trachomatis</i>) Cryptosporidiosis (<i>Cryptosporidium parvum</i>) Cyclosporiasis (<i>Cyclospora cayetanensis</i>) Dengue fever (<i>flavivirus</i>) Drug resistant organisms: <ul style="list-style-type: none"> Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA), invasive Vancomycin-resistant and -intermediate <i>Staphylococcus aureus</i> (VRSA and VISA) Drug resistant <i>Streptococcus pneumoniae</i> (DRSP), invasive Ehrlichiosis (<i>Ehrlichia</i> spp.) Epsilon toxin of <i>Clostridium perfringens</i> Giardiasis (<i>Giardia lamblia / intestinalis</i>) Glanders (<i>Burkholderia mallei</i>) Gonorrhea (<i>Neisseria gonorrhoeae</i>) <i>Haemophilus influenzae</i> type b disease, invasive Hantavirus pulmonary syndrome (<i>hantavirus</i>) Hemolytic uremic syndrome Hepatitis, acute viral A, B, C, D, and E Hepatitis, chronic viral B and C Hepatitis B infection, perinatal <i>Herpes simplex</i> virus infection, neonatal or genital Human immunodeficiency virus infection (HIV)</p> <p>Influenza: all lab confirmed cases, pediatric deaths and - weekly reports of number of rapid antigen influenza positive tests and total number tested Legionellosis (<i>Legionella</i> spp.) Leprosy/Hansen's disease (<i>Mycobacterium leprae</i>) Listeriosis (<i>Listeria monocytogenes</i>) Lyme disease (<i>Borrelia burgdorferi</i>) Malaria (<i>Plasmodium</i> spp.) Meloidosis (<i>Burkholderia pseudomallei</i>) Mumps (<i>paramyxovirus</i>) Nipah virus (<i>paramyxovirus</i>) Psittacosis (<i>Chlamydophila psittaci</i>) Q fever (<i>Coxiella burnetii</i>) Rocky Mountain spotted fever (<i>Rickettsia rickettsii</i>) Salmonellosis (<i>Salmonella</i> spp.) Shigellosis (<i>Shigella</i> spp.) Staphylococcus enterotoxin B Streptococcal disease, Group A, invasive Streptococcal disease, Group B, invasive <i>Streptococcus pneumoniae</i>, invasive, in a child less than 5-years of age Syphilis (<i>Treponema pallidum</i>) Tetanus (<i>Clostridium tetani</i>) Toxic shock syndrome Transmissible spongiform encephalopathies Trichinosis (<i>Trichinella spiralis</i>) Tuberculosis (<i>Mycobacterium tuberculosis</i> and <i>Mycobacterium bovis</i>) active disease and latent infection (positive skin test) Typhus fever (<i>Rickettsia prowazekii</i>) Vaccine Adverse Events Yellow fever (<i>flavivirus</i>)</p>

Category I diseases are reportable immediately by telephone* on the day of recognition or strong suspicion of disease. Category II diseases are reportable by telephone*, mail**, facsimile***, reporting website**** or courier, within 3 days after recognition or strong suspicion of disease.

*Telephones: 24 hour answering device 1-800-592-1804; during working hours 1-800-592-1861. After hours to report Category I diseases, call cellular phone 605-280-4810.

**Mail in a sealed envelope addressed to the DOH, Office of Disease Prevention, 615 E. 4th Street, Pierre, SD 57501, and marked "Confidential Medical Report".

***Fax 605-773-5509.

****Secure reporting website: <https://www.state.sd.us/doh/diseasereport>

COMMUNICABLE DISEASE SURVEILLANCE

The Department of Health (DOH) has adopted administrative rules, ARSD 44:20, authorizing a statewide surveillance system for communicable diseases. The rules also establish public health measures that control and prevent disease transmission.

Infectious disease surveillance is the ongoing collection, analysis, interpretation, and dissemination of health data. This type of assessment is a core public health function. Communicable disease surveillance monitors patterns of disease occurrence, which contribute to the health status of South Dakota's population. Surveillance can detect sudden changes in disease occurrence, such as outbreaks, or identify long-term disease trends, or monitor new and emerging diseases. Surveillance activities are linked to public health actions, such as investigation, control and prevention, evaluation, planning, and allocating resources to address the diseases affecting the population.

An important surveillance component is sharing infectious disease data with health care providers, public health agencies, the general population, academia, and public health and medical policy makers at local, state, tribal and national levels. Surveillance assessment reports should serve to inform and motivate.

Table 73 catalogs the infectious disease reports from 1995 to 2005. Table 74 reports the 2005 disease numbers by county of residency, statewide total, and shows the statewide incidence rate (cases per 100,000 population). Each disease is compared to the median case count of the previous five years (2000-2004), and the percentage increase or decrease is shown. Table 75 presents selected diseases stratified by gender, race, and age group.

In 2005, the following diseases (cases) were reported and found to meet the case definition:

- Anthrax (0)
- Botulism (1)
- Brucellosis (0)
- Campylobacteriosis (244)
- Chancroid (0)
- Chlamydia trachomatis infections (2701)
- Cholera (0)
- Cryptosporidiosis (31)
- Dengue fever (1)
- Diphtheria (0)
- *E. coli* O157:H7 (29)
- *E. coli*, shiga-toxin producing non-O157:H7 (4)
- Giardiasis (118)
- Gonorrhea (351)
- Haemophilus influenzae type B (0)
- Hantavirus pulmonary syndrome (2)
- Hemolytic uremic syndrome (3)
- Hepatitis A (1)
- Hepatitis B, acute (8)
- Hepatitis B, chronic (33)
- Hepatitis C, chronic (207)
- Herpes simplex, genital and neonatal (342)
- HIV and AIDS (33)
- Legionellosis (21)
- Leprosy (0)
- Listeriosis (0)
- Lyme disease (2)
- Malaria (0)
- Measles (0)
- Meningococcal disease (4)
- Methicillin resistant *Staphylococcus aureus*, invasive (47)
- Mumps (0)
- Pertussis (183)
- Plague (0)
- Polio (0)
- Psittacosis (0)
- Q fever (2)
- Rabies, animal (68)
- Rabies, human (0)
- Rocky Mountain spotted fever (5)
- Rubella and congenital rubella syndrome (0)
- Saint Louis encephalitis (0)
- Salmonellosis (160)
- Shigellosis (131)
- Streptococcal disease, Group A, invasive (26)
- Streptococcal disease, Group B, invasive (26)
- *Streptococcus pneumoniae*, drug resistant (3)
- Syphilis, primary and secondary (2)
- Tetanus (0)
- Toxic shock syndrome (2)
- Transmissible spongiform encephalopathies (0)
- Trichinosis (0)
- Tuberculosis (16)
- Tularemia (8)
- Varicella (136)
- West Nile neuroinvasive disease (35)
- West Nile fever (194)

Table 73
Reportable Diseases in South Dakota, 1995-2005

Reportable Diseases	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Anthrax	0	0	0	0	0	0	0	1	0	0	0
Botulism	0	0	0	0	1	1	0	0	1	0	1
Brucellosis	0	0	0	0	0	0	0	0	1	0	0
Campylobacteriosis	100	71	108	103	140	141	160	198	188	273	244
Chlamydia trachomatis infections	1317	1538	1439	1573	1554	1835	1821	2215	2606	2534	2701
Cholera	0	0	0	0	0	0	0	1	0	0	0
Cryptosporidiosis	NR	0	23	25	7	15	8	42	49	44	31
Denque fever	0	0	0	0	0	0	0	1	0	0	1
Diphtheria	0	0	1	0	0	0	0	0	0	0	0
E. coli O157:H7	23	26	29	37	47	56	44	41	29	33	29
Giardiasis	171	89	127	181	143	108	106	83	89	87	118
Gonorrhea	244	176	172	221	192	277	289	263	226	304	351
Haemophilus influenzae type b	1	1	3	1	4	1	0	1	1	0	0
Hantavirus pulmonary syndrome	2	0	0	0	0	1	0	0	1	1	2
Hemolytic uremic syndrome	0	0	1	0	4	2	1	0	1	0	3
Hepatitis A	99	43	27	40	10	3	3	3	0	4	1
Hepatitis B, acute	2	5	1	4	1	2	1	3	4	1	8
Hepatitis B, chronic	NR	NR	NR	NR	NR	NR	NR	NR	NR	26	33
Hepatitis C, chronic	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	207
Herpes simplex, genital and neonatal	102	102	94	142	275	339	345	310	297	322	342
HIV and AIDS	35	24	25	17	27	22	22	21	25	19	33
Legionellosis	3	3	4	7	6	2	3	4	2	5	21
Leprosy	0	0	0	1	0	0	0	0	0	0	0
Listeriosis	0	1	1	0	1	0	0	1	0	1	0
Lyme disease	0	0	1	0	0	0	0	2	1	1	2
Malaria	0	2	3	1	0	1	0	2	3	1	0
Measles	0	0	8	0	0	0	0	0	0	0	0
Meningococcal disease	11	10	6	9	11	6	5	2	1	4	4
Methicillin-resistant <i>Staph aureus</i> , invasive	NR	NR	NR	NR	NR	NR	NR	NR	NR	36	47
Mumps	0	0	0	0	0	0	0	0	0	0	0
Pertussis (whooping cough)	12	4	5	8	8	11	5	8	7	169	183
Plaque	0	0	0	0	0	0	0	0	0	0	0
Q fever	NR	NR	NR	NR	NR	NR	0	1	0	0	2
Rabies, animal	105	132	94	166	180	96	58	96	132	94	68
Rabies, human	0	0	0	0	0	0	0	0	0	0	0
Rocky Mountain Spotted Fever	1	1	2	0	4	2	2	1	5	4	5
Rubella and congenital rubella syndrome	0	0	0	0	0	0	0	0	0	0	0
St. Louis Encephalitis	0	0	0	0	0	0	0	0	2	0	0
Salmonellosis	108	119	90	132	100	100	151	121	131	156	160
Shigellosis	200	94	31	33	18	8	716	157	17	12	131
Streptococcal disease, Group A, invasive	NR	NR	15	9	11	16	17	14	25	22	26
Streptococcal disease, Group B, invasive	NR	NR	NR	NR	NR	NR	NR	20	14	11	26
<i>Streptococcus pneumoniae</i> , drug resistant	NR	NR	0	0	3	8	6	1	1	5	3
Syphilis, Primary and Secondary	0	0	1	1	0	0	1	0	2	0	2
Tetanus	0	0	0	1	0	0	0	0	0	0	0
Toxic shock syndrome	1	0	1	2	0	2	0	1	1	1	2
Transmissible spongiform encephalopathies	--	--	--	--	1	0	1	0	2	2	0
Tuberculosis	28	19	19	23	21	16	13	13	20	11	16
Tularemia	19	11	4	3	7	13	7	3	5	4	8
Varicella (chicken pox)	NR	NR	NR	NR	NR	NR	NR	NR	NR	99	136
West Nile neuroinvasive disease	0	0	0	0	0	0	0	14	170	6	35
West Nile fever	0	0	0	0	0	0	0	23	869	45	194

*NR= not reportable

Source: South Dakota Department of Health, Office of Disease Prevention

Table 74a
South Dakota Selected Notifiable Diseases by County, 2005 (continued)

County	Campylobacteriosis	Chlamydia	Cryptosporidiosis	<i>E. coli</i> O157:H7	Giardiasis	Gonorrhea	Herpes, genital and neonatal	Methicillin-resistant <i>Staphylococcus aureus</i> , invasive	Pertussis	Salmonellosis	Shigellosis	Streptococcal disease, Group A, invasive	Streptococcal disease, Group B, invasive	Tuberculosis	Varicella	West Nile Disease
Aurora	5	4	0	0	0	0	0	≤ 3	0	0	0	0	0	0	0	≤ 3
Beadle	5	36	≤ 3	0	≤ 3	≤ 3	≤ 3	≤ 3	0	5	0	0	0	0	6	6
Bennett	0	15	0	0	≤ 3	≤ 3	0	0	0	0	0	0	0	≤ 3	0	≤ 3
Bon Homme	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	0	≤ 3	0	4	0	≤ 3	0	0	0	≤ 3	≤ 3
Brookings	12	66	≤ 3	0	0	≤ 3	14	≤ 3	0	4	0	≤ 3	≤ 3	0	≤ 3	6
Brown	18	96	≤ 3	≤ 3	9	12	14	0	7	≤ 3	0	≤ 3	≤ 3	0	9	43
Brule	≤ 3	10	0	0	0	0	≤ 3	≤ 3	8	≤ 3	0	0	0	≤ 3	0	≤ 3
Buffalo	≤ 3	21	0	0	0	4	≤ 3	0	≤ 3	0	0	0	0	0	0	≤ 3
Butte	≤ 3	4	0	0	≤ 3	0	≤ 3	0	0	≤ 3	0	0	0	0	0	4
Campbell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	≤ 3
Charles Mix	6	75	0	0	≤ 3	36	0	≤ 3	0	≤ 3	55	0	0	0	≤ 3	6
Clark	0	≤ 3	0	0	0	0	0	≤ 3	0	0	0	0	0	0	≤ 3	0
Clay	0	34	≤ 3	0	0	0	11	≤ 3	0	≤ 3	≤ 3	0	0	0	0	5
Codington	≤ 3	62	≤ 3	≤ 3	5	≤ 3	13	≤ 3	≤ 3	4	7	≤ 3	≤ 3	0	≤ 3	5
Corson	≤ 3	42	0	0	0	11	0	0	≤ 3	≤ 3	0	0	0	≤ 3	0	≤ 3
Custer	0	17	0	0	0	0	≤ 3	0	≤ 3	≤ 3	0	0	0	0	≤ 3	≤ 3
Davison	10	55	0	≤ 3	5	0	12	≤ 3	0	6	≤ 3	≤ 3	≤ 3	0	0	30
Day	4	≤ 3	0	0	0	≤ 3	0	0	4	≤ 3	0	0	0	0	0	≤ 3
Deuel	≤ 3	5	0	≤ 3	0	≤ 3	0	≤ 3	0	0	0	0	0	0	0	≤ 3
Dewey	≤ 3	167	0	0	0	45	≤ 3	0	≤ 3	≤ 3	0	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
Douglas	≤ 3	≤ 3	0	0	0	0	≤ 3	0	0	4	≤ 3	0	0	0	0	≤ 3
Edmunds	4	≤ 3	0	0	≤ 3	0	0	0	0	0	0	0	0	0	0	≤ 3
Fall River	0	5	0	0	0	0	≤ 3	0	≤ 3	≤ 3	0	0	0	0	0	≤ 3
Faulk	≤ 3	≤ 3	0	0	4	0	0	0	≤ 3	≤ 3	0	0	0	0	0	≤ 3
Grant	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	0	≤ 3	0	≤ 3	0	0	0	0	0	0	≤ 3
Gregory	≤ 3	8	0	≤ 3	0	≤ 3	≤ 3	≤ 3	0	0	≤ 3	0	0	0	0	0
Haakon	0	≤ 3	0	0	0	0	0	0	0	≤ 3	0	0	0	0	0	0
Hamlin	4	≤ 3	0	0	≤ 3	0	≤ 3	0	≤ 3	0	0	≤ 3	0	0	0	≤ 3
Hand	≤ 3	0	0	0	0	0	0	0	0	≤ 3	0	0	0	0	0	≤ 3
Hanson	≤ 3	≤ 3	0	0	0	0	0	0	0	≤ 3	0	0	0	0	0	6
Harding	0	≤ 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hughes	≤ 3	60	0	0	≤ 3	≤ 3	14	0	19	≤ 3	0	0	0	0	12	4
Hutchinson	≤ 3	4	0	0	0	≤ 3	0	0	0	0	0	0	0	0	0	5
Hyde	≤ 3	0	0	0	0	0	≤ 3	0	0	0	0	0	0	0	0	0
Jackson	≤ 3	33	0	0	0	≤ 3	≤ 3	0	0	≤ 3	≤ 3	0	0	≤ 3	0	≤ 3
Jerauld	≤ 3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	≤ 3

Continued

Table 74b
South Dakota Selected Notifiable Diseases by County, 2005 (continuing)

County	Campylobacteriosis	Chlamydia	Cryptosporidiosis	<i>E. coli</i> O157:H7	Giardiasis	Gonorrhea	Herpes, genital and neonatal	Methicillin-resistant <i>Staphylococcus aureus</i> , invasive	Pertussis	Salmonellosis	Shigellosis	Streptococcal disease, Group A, invasive	Streptococcal disease, Group B, invasive	Tuberculosis	Varicella	West Nile Disease
Jones	≤ 3	0	0	0	0	0	0	0	≤ 3	0	0	0	0	0	0	0
Kingsbury	≤ 3	≤ 3	0	0	0	0	≤ 3	≤ 3	0	0	0	0	0	0	≤ 3	≤ 3
Lake	7	10	0	0	4	0	≤ 3	0	0	4	0	≤ 3	0	0	0	≤ 3
Lawrence	≤ 3	75	0	≤ 3	≤ 3	7	18	0	≤ 3	6	≤ 3	0	0	0	≤ 3	≤ 3
Lincoln	9	14	≤ 3	0	9	≤ 3	7	≤ 3	20	7	≤ 3	0	≤ 3	0	11	5
Lyman	0	27	0	0	0	0	≤ 3	0	≤ 3	≤ 3	0	0	0	0	10	≤ 3
Marshall	≤ 3	≤ 3	≤ 3	≤ 3	0	0	0	0	0	≤ 3	0	0	0	0	0	≤ 3
McCook	5	≤ 3	0	0	≤ 3	0	0	≤ 3	0	0	0	≤ 3	0	0	0	≤ 3
McPherson	≤ 3	0	0	≤ 3	≤ 3	0	0	0	0	0	0	0	0	0	0	≤ 3
Meade	≤ 3	15	0	≤ 3	4	0	8	0	≤ 3	≤ 3	0	≤ 3	0	≤ 3	≤ 3	≤ 3
Mellette	≤ 3	9	0	0	0	0	0	0	≤ 3	≤ 3	≤ 3	0	0	≤ 3	0	≤ 3
Miner	≤ 3	4	0	0	0	0	0	≤ 3	0	5	0	0	0	0	0	0
Minnehaha	46	640	≤ 3	6	26	79	97	21	43	49	≤ 3	≤ 3	11	7	49	13
Moody	≤ 3	15	≤ 3	0	0	≤ 3	≤ 3	0	0	0	0	0	0	0	≤ 3	≤ 3
Pennington	14	401	0	0	10	47	82	0	11	9	4	≤ 3	0	≤ 3	9	7
Perkins	≤ 3	≤ 3	0	0	0	0	0	0	0	≤ 3	0	0	0	0	≤ 3	4
Potter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	≤ 3	0
Roberts	5	62	≤ 3	0	≤ 3	5	≤ 3	≤ 3	≤ 3	0	0	≤ 3	0	0	≤ 3	≤ 3
Sanborn	≤ 3	≤ 3	0	≤ 3	0	≤ 3	≤ 3	≤ 3	0	0	0	0	0	0	≤ 3	≤ 3
Shannon	≤ 3	301	0	0	≤ 3	45	≤ 3	0	13	≤ 3	13	≤ 3	0	≤ 3	≤ 3	≤ 3
Spink	4	≤ 3	0	≤ 3	≤ 3	≤ 3	0	0	0	7	0	≤ 3	0	0	0	5
Stanley	≤ 3	0	0	0	≤ 3	0	0	0	≤ 3	≤ 3	≤ 3	0	0	0	0	≤ 3
Sully	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Todd	0	202	0	0	≤ 3	26	≤ 3	≤ 3	≤ 3	≤ 3	25	≤ 3	≤ 3	0	≤ 3	≤ 3
Tripp	7	7	0	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3	23	0	≤ 3	0	≤ 3	0	0	≤ 3
Turner	6	≤ 3	0	0	≤ 3	≤ 3	≤ 3	0	≤ 3	≤ 3	0	0	≤ 3	0	0	6
Union	4	9	0	0	0	0	≤ 3	0	≤ 3	4	≤ 3	0	0	0	0	≤ 3
Walworth	≤ 3	14	0	0	0	≤ 3	≤ 3	0	≤ 3	0	0	≤ 3	0	0	0	≤ 3
Yankton	6	25	10	≤ 3	12	≤ 3	5	0	≤ 3	5	7	≤ 3	≤ 3	0	0	4
Ziebach	0	14	0	0	0	≤ 3	0	0	0	≤ 3	0	0	≤ 3	0	0	0
South Dakota	244	2701	31	29	118	351	342	47	183	160	131	26	26	16	136	229
Rate per 100,000	31.4	348.1	4.0	3.7	15.2	45.2	44.1	6.2	23.6	20.6	16.9	3.4	3.4	2.1	175	29.5
5-year median	188	2215	42	41	89	277	322	NA	8	131	17	17	13	13	NA	37
% change of median	30%	22%	-26%	-29%	33%	27%	6%	NA	2188%	22%	671%	53%	100%	23%	NA	519%

Source: South Dakota Department of Health, Office of Disease Prevention

In 2005 there were also: 207 cases of Hepatitis C, chronic; 33 cases of Hepatitis B, chronic; 21 cases of Legionellosis; 8 cases each of Hepatitis B, acute and Tularemia; 5 cases of Rocky Mountain spotted fever; 4 cases each of Meningococcal disease and shiga-toxin producing *E. coli* (non-O157:H7); 3 cases each of Hemolytic uremic syndrome and drug resistant *Streptococcus pneumoniae*; 2 cases each of Hantavirus pulmonary syndrome, Lyme disease, Q fever, Syphilis (primary & secondary), and Toxic shock syndrome.; and 1 case each of wound Botulism, Dengue fever, *E. coli* associated with HUS, and Hepatitis A.

To safeguard privacy "≤ 3" designates strata with 1, 2 or 3 cases.

Table 75
South Dakota Selected Notifiable Disease Summary by Gender, Race, and Age, 2005

		Gender*				Race*							Age group (in years)							
Disease	Total	Male (%)		Female (%)		White (%)		American Indian (%)		Other or unknown (%)		Median age	<1	1-4	5-14	15-24	25-39	40-64	≥65	
Campylobacteriosis	244	135	55%	109	45%	228	93%	12	5%	4	1%	28	8	37	24	42	54	59	20	
Chlamydia	2701	774	29%	1924	71%	1301	48%	1276	47%	122	5%	21	2		46	1977	614	34	1	
Cryptosporidiosis	31	12	39%	19	61%	31	100%	0	0%	0	0%	20	0	5	9	5	6	2	4	
E. coli O157:H7	29	12	41%	17	59%	28	97%	0	0%	1	3%	19	0	6	8	2	0	10	3	
Giardiasis	118	70	59%	47	40%	102	86%	11	9%	5	4%	22	5	36	14	7	31	21	3	
Gonorrhea	351	155	44%	196	56%	74	21%	236	67%	41	12%	22	1		1	225	108	11	0	
Herpes, genital and neonatal	342	50	15%	288	85%	295	87%	33	10%	10	3%	26	1		1	141	124	52	12	
HIV/AIDS	33	19	58%	14	42%	16	49%	7	21%	10	30%	32	0	0	0	3	16	14	0	
Methicillin-resistant <i>Staph. aureas</i> , invasive	47	27	57%	20	43%	42	89%	5	11%	0	0%	80	0	1	1	1	2	9	30	
Pertussis	183	82	45%	101	55%	137	75%	43	23%	3	2%	12	33	35	39	20	22	29	5	
Salmonellosis	160	76	48%	84	52%	140	88%	11	7%	9	6%	26	11	20	23	21	34	32	18	
Shigellosis	131	57	44%	74	56%	46	35%	84	64%	1	1%	8	7	47	35	10	20	7	4	
Streptococcus A, invasive	26	16	62%	10	38%	18	69%	8	31%	0	0%	54	0	2	2	1	1	12	8	
Streptococcus B, invasive	26	11	42%	15	58%	20	77%	4	15%	2	8%	61	5	0	0	1	1	8	10	
Tuberculosis	16	6	38%	10	62%	4	25%	6	38%	6	38%	48	0	0	0	2	3	8	3	
Varicella	136	64	47%	71	52%	104	77%	21	15%	11	8%	6	13	45	73	2	1	2	0	
West Nile virus disease	229	138	60%	91	40%	212	93%	12	5%	5	2%	44	0	2	8	35	46	109	29	

Total cases reported on this table may differ slightly from row totals due to incomplete case information.

*South Dakota's overall population in 2005 was 50% male and 50% female; 89% White, 9% American Indian and 2% other races.

Source: South Dakota Department of Health, Office of Disease Prevention

VACCINE-PREVENTABLE DISEASES: Diphtheria, Pertussis, Tetanus, Measles, Mumps, Rubella, Polio, *Haemophilus influenzae* type b disease, Varicella, Hepatitis A and B.

The Centers for Disease Control and Prevention (CDC) regards vaccination as one of the 10 great public health achievements of the twentieth century. Vaccination has resulted in the global eradication of smallpox, the elimination of poliomyelitis from the Western Hemisphere, and the control of measles, rubella, tetanus, diphtheria, *Haemophilus influenzae* type b (Hib), and other infectious diseases in the United States and many other countries.

Immunization is a fundamental component of comprehensive child health care. The South Dakota statewide goal is to immunize 90 percent of 2-year old children for measles, mumps, rubella, diphtheria, pertussis, polio, *Haemophilus influenzae* type b, varicella, Tetanus and HAB.

In South Dakota, factors contributing to increased vaccination rates and disease reduction include enacting a statewide school immunization law in 1971; implementing child-care facility immunization standards; providing vaccines (measles vaccine distribution began in 1967, rubella in 1969, mumps in 1976, *Haemophilus influenzae* b in 1989, hepatitis B in 1993, hepatitis A in 1995, and chicken pox in 2001); and since 1978 providing free supplies of all required childhood vaccines for private and public clinic use. In 1996, the South Dakota Immunization Information System (SDIIS) was implemented, and it currently networks the immunization records of 253 health centers across the state.

During 2005, no cases of measles, mumps, rubella, diphtheria, tetanus, or polio were reported in South Dakota.

One-hundred and eighty-three cases of pertussis (whooping cough) were reported in South Dakota in 2005. Thirty-three of this

year's cases were in children less than one year of age.

Complications of pertussis may include severe cough, pneumonia, otitis media, seizures, encephalopathy, brain damage, and occasionally death. Pertussis is most severe in young infants, with 70 percent of all pertussis deaths occurring during the first year of life. The bacterial agent, *Bordetella pertussis*, has been isolated from 25 percent of adults with cough illness lasting more than seven days. These adults often serve as a source of infection for unimmunized children.

A decreasing trend of *Haemophilus influenzae* type b is evident from the 54 cases reported in 1990 down to zero in 2005. Invasive *H. influenzae* disease can cause meningitis, pneumonia, osteomyelitis, epiglottitis, cellulitis and pericarditis. This preventable disease has a case-fatality rate of 2 percent to 5 percent.

Immunization requirements for entrance into South Dakota schools since 2000 have included:

- a) 4 doses of diphtheria, tetanus, pertussis vaccine (DTaP or DTP), and
- b) 3 doses of poliovirus vaccine, and
- c) 2 doses of measles vaccine, and
- d) 2 doses of rubella vaccine, and
- e) 2 doses of mumps vaccine, and
- f) 1 dose of chicken pox vaccine.

The DOH strives to enroll all children in South Dakota in SDIIS.

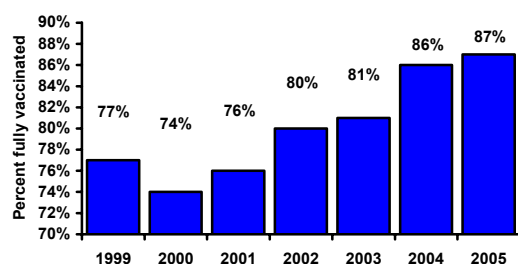
Child vaccination coverage rates are estimated by the National Immunization Survey (NIS). The NIS provides vaccination coverage estimates for children

aged 19-35 months for each of the 50 states, including South Dakota.

To collect vaccination data for age-eligible children, NIS uses a quarterly random-digit-dialing sample of telephone numbers to find households with children aged 19 to 35 months. Parents or guardians are asked to report the vaccines, with dates, that appear on the child's "shot card" kept in the home. At the end of the interview, permission is requested to contact the child's vaccination providers. The providers are then contacted by mail to verify each child's vaccinations.

In 2005, 87 percent of children 19-35 months old in South Dakota were adequately immunized (Figure 27). There has been a generally improving trend in vaccination coverage since the SDIIS was launched in 1996, but we are still short of our 90 percent immunization coverage objective.

Figure 27
South Dakota Immunization Rates,
Children 19-35 Months 1999 – 2005
(National Immunization Survey 4:3:1:3:3)



Immunization rates of children 19-35 months old immunized with 4 doses of DTaP, 3 doses polio, 1 dose of MMR, 3 doses of *Haemophilus influenzae* b, and 3 doses of hepatitis B vaccine.

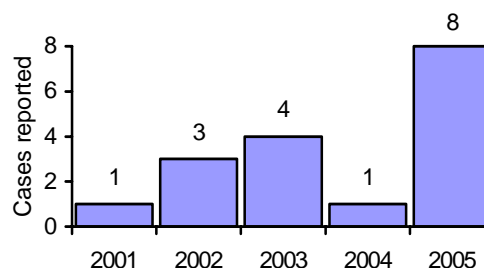
Source: South Dakota Department of Health, Office of Disease Prevention

Viral Hepatitis There were eight cases of acute hepatitis B reported in 2005 (Figure 28). The year 2004 marked the first year that chronic hepatitis B infections became reportable. There were 26 cases of chronic hepatitis B infections reported in South Dakota in 2004 and 33 cases reported in 2005. Hepatitis B is caused by a virus

transmitted by blood and other body fluids. It can cause lifelong infection, liver cirrhosis, liver cancer, liver failure, and death.

As part of a nationwide prevention program, hepatitis B vaccine has been made available for routine use in newborns and for children and adolescents who did not complete vaccination as infants. Hepatitis B vaccination is not mandatory for school entry in South Dakota. Adults at risk for hepatitis B infection who should consider vaccination include: people who have more than one sex partner in six months, men who have sex with other men, sex contacts of infected people, people who inject illegal drugs, health care and public safety workers who might be exposed to infected blood or body fluids, household contacts of persons with chronic HBV infection and hemodialysis patients.

Figure 28
Acute Hepatitis B in South Dakota,
2001 – 2005



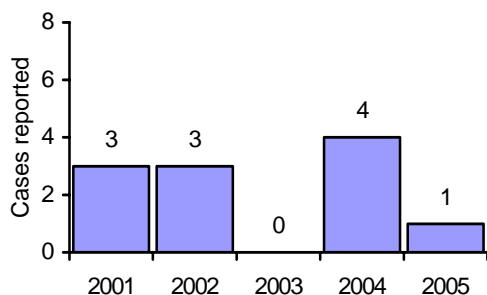
Source: South Dakota Department of Health, Office of Disease Prevention

In 2005, there was one case of hepatitis A reported in South Dakota (Figure 29). Over the past five years there has been a decreasing trend in the incidence of hepatitis A in South Dakota. The Healthy People 2010 target is 4.5 new cases of hepatitis A per 100,000 population.

Hepatitis A is a virus shed in the feces and transmitted person-to-person or by contaminated food or water. The illness causes mild to serious liver disease. To

prevent hepatitis A the vaccine is available for children and adults.

Figure 29
Hepatitis A in South Dakota, 2001 – 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Although more than 300 reports of patients with anti-hepatitis C virus antibody were received by the DOH, no cases of acute hepatitis C were reported.

SEXUALLY TRANSMITTED DISEASES

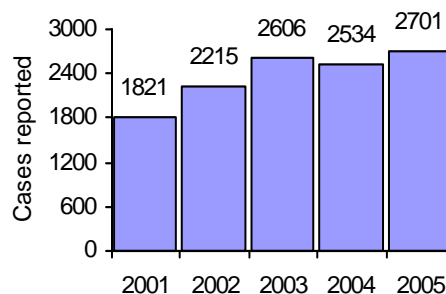
Sexually transmitted diseases (STDs) include several bacterial and viral infections that can be passed person-to-person by genital, oral or anal sexual contact. STDs include gonorrhea, chlamydia, genital herpes, syphilis, genital warts, HIV infection, chancroid, trichomoniasis, lymphogranuloma venereum, and others. All STDs have the potential to cause serious illness, but most are treatable. STDs are preventable by abstinence, uninfected partner monogamy, and proper use of condoms.

Over the past decade, South Dakota has generally reduced the occurrence of STDs through intensive efforts to identify and treat infected persons. Although gonorrhea and chlamydia cases have decreased, they are still common. Syphilis and lymphogranuloma venereum have become rare, and chancroid is almost unheard of in our state. STDs in South Dakota primarily affect young people between the ages of 15 and 24 years, and minority populations.

Chlamydia Chlamydia is the most commonly reported STD in South Dakota. During 2005, the DOH received 2,701 case reports (Figure 30), which is an incidence

rate of 348.1 cases per 100,000 population. This was an increase of 22 percent over the 5-year median. Counties with the highest incidence (cases per 100,000 population) included Dewey (2711), Shannon (2204), Todd (2044), Jackson (1155), Buffalo (1000), Corson (962), Charles Mix (816), Lyman (689), Roberts (617), Ziebach (532), Mellette (431), Pennington (429), Bennett (418), Hughes (356), and Lawrence (335) (Figure 31).

Figure 30
Chlamydia in South Dakota, 2001 – 2005

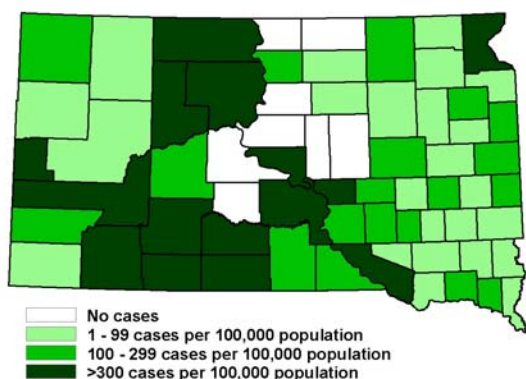


Source: South Dakota Department of Health, Office of Disease Prevention

Nationally, the incidence of chlamydia in 2004 was 320 cases per 100,000 population.

South Dakota ranked 18th that year with an incidence of 331.

Figure 31
Chlamydia Incidence Rates by County,
South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

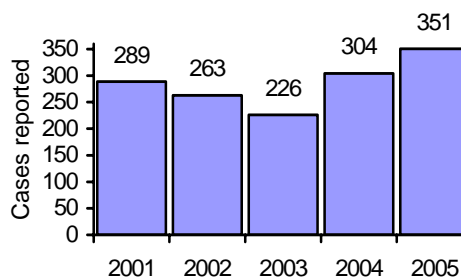
Screening for chlamydia infection has become standard practice for many health care providers in the state. Indian Health Service, family planning clinics, and many private providers have incorporated chlamydia screening as part of the routine health examination for sexually active young women. Screening follow-up encompasses treatment and partner referral. Because screening efforts are focused on women, female infections are more likely to be identified than males. Our data show that 71 percent of chlamydia cases were female in 2005.

Young people between 15 and 24 years old accounted for 74 percent of the chlamydia cases reported in 2005. Although American Indians comprise 9 percent of the state's population, a disproportionate share, 47 percent, of chlamydia case reports were in this population group. This higher disease rate necessitates continued targeting of screening and disease intervention among American Indians.

Gonorrhea South Dakota has experienced a substantial increase in gonorrhea from a low

of 226 cases in 2003. A notable increase was observed in 2005 with 351 cases (Figure 32), which is an incidence of 45 cases per 100,000 population. This is a 27 percent increase over the 5-year median.

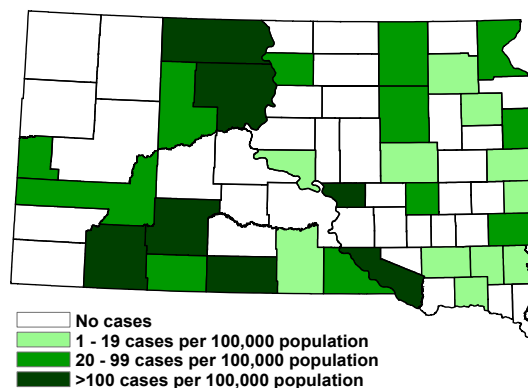
Figure 32
Gonorrhea in South Dakota,
2001 – 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Twenty-one percent of the gonorrhea case reports occurred in the white population, and 56 percent were female. The Healthy People 2010 objective is 19 new cases of gonorrhea per 100,000 population. Counties with the highest incidence (cases per 100,000 population) included Dewey (730), Charles Mix (392), Shannon (330), Todd (263), Corson (252), Buffalo (191), and Jackson (105) (Figure 33).

Figure 33
Gonorrhea Incidence Rates by County,
South Dakota, 2005



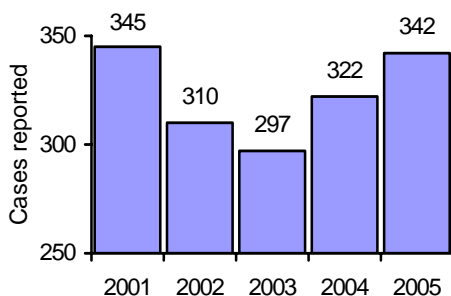
Source: South Dakota Department of Health, Office of Disease Prevention

Sexually active adolescents and young adults are the population most at risk with 65 percent of the gonorrhea cases reported being 15 to 24 years old. The American Indian population was disproportionately affected with 67 percent of the reported cases.

Nationally the incidence of gonorrhea was 114 cases per 100,000 population in 2004. South Dakota ranked 41st that year with an incidence of 40.

Herpes Genital herpes became reportable in 1993 in South Dakota. In 2005, 342 cases were reported (Figure 34), which is a 6 percent increase over the 5-year median, and a 6 percent increase over 2004.

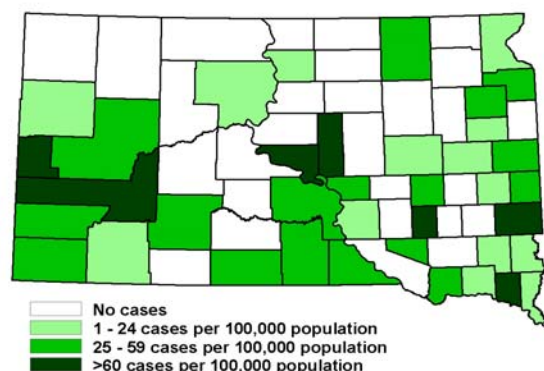
Figure 34
Genital Herpes in South Dakota,
2001 – 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Eighty-seven percent of the herpes case reports occurred in the white population, and 85 percent were female. Counties with the highest incidence (cases per 100,000 population) included Pennington (88), Clay (85), Hughes (83), Lawrence (80), Davison (64), Hyde (62), and Minnehaha (61) (Figure 35).

Figure 35
Genital Herpes Incidence Rates by
County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Genital herpes is a recurrent, incurable viral disease caused by the herpes simplex virus 1 or 2. The infections may be asymptomatic, cause genital lesions, or rarely, severe complications such as encephalitis or disseminated infection.

Management of genital herpes depends on clinical presentation, and may include antiviral therapy and counseling for behavior adaptations and prevention.

Syphilis There were 2 cases of infectious syphilis reported in South Dakota in 2005 (Table 76). The Healthy People 2010 target for primary and secondary syphilis is 0.2 cases per 100,000 population. South Dakota participates in syphilis elimination through expedited case management, partner referral, and interstate coordination of outbreak investigations. Over the last several years only sporadic reports of syphilis have been reported in the state. Due to prompt intervention and control efforts, syphilis transmission has typically been limited and has not spread within the state.

Table 76
Syphilis in South Dakota, 1991-2005

Year	Primary and Secondary	Congenital	Early Latent	Late Latent
1991	1	0	5	5
1992	1	0	0	0
1993	0	0	1	0
1994	2	0	0	1
1995	0	0	1	6
1996	0	0	0	2
1997	1	0	2	5
1998	1	1	0	1
1999	0	1	1	1
2000	0	0	0	1
2001	1	0	0	0
2002	0	0	0	0
2003	2	0	3	0
2004	0	0	0	0
2005	2	0	0	0
Total	11	2	13	22

Source: South Dakota Department of Health, Office of Disease Prevention

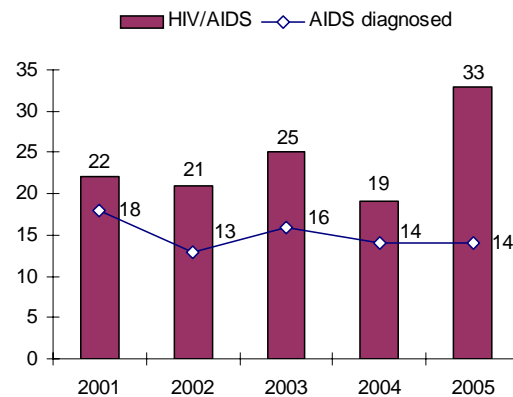
HIV/AIDS

Acquired immunodeficiency syndrome (AIDS) is caused by an infection of human immunodeficiency virus (HIV). From 1981, when AIDS was first identified in the United States, through December 2004, 929,985 AIDS cases had been reported to the CDC. Of these cases, 529,113 (56 percent) are estimated to have died.

AIDS became a reportable disease in South Dakota in 1985 and HIV infection became reportable in 1988. Through December 2004, there were 462 cases of HIV/AIDS reported in the state (226 AIDS cases and 188 HIV cases). In 2005, there were 33 new cases of HIV reported and 14 new cases of AIDS diagnosed. Figure 36 shows the number of combined new HIV/AIDS cases reported to the DOH by year and the number of conversions to AIDS. South Dakota had the 2nd lowest incidence rate of AIDS in the

USA in 2004. In 2005, the AIDS incidence rate was 4.3 cases per 100,000.

Figure 36
HIV/AIDS in South Dakota, 2001 – 2005



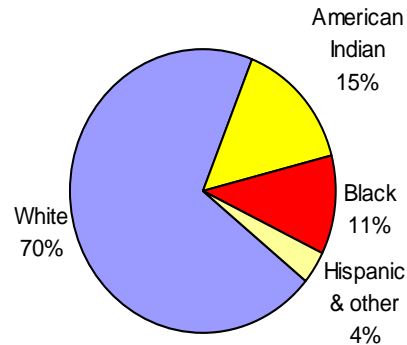
Source: South Dakota Department of Health, Office of Disease Prevention

In 2002, there were more women (62 percent) than men (38 percent) reported with

HIV/AIDS, which was the first time this was observed. In South Dakota, the number of females with HIV is still small, 20 percent cumulative as of December 2004, but the number is generally increasing yearly. Most women who become infected with HIV are in their childbearing years.

Nationally, there are a disproportionate number of AIDS cases in the Black and Hispanic communities. South Dakota's minority groups are also disproportionately affected by HIV/AIDS (Figure 37). Blacks made up 10 percent of the HIV/AIDS cases in the state, but comprise less than 1 percent of the total population. Americans Indians comprised 15 percent of the state's HIV/AIDS cases, but 9 percent of the population; and Hispanic other residents accounted for 4 percent of the HIV/AIDS cases, but only 1 percent of the population. White people make up 89 percent of the state's population, and 71 percent of the HIV/AIDS cases.

Figure 37
HIV/AIDS by Race or Ethnic Group,
South Dakota, 1985-2005 (n=495)



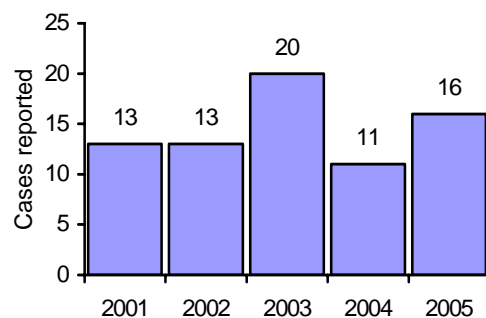
Source: South Dakota Department of Health, Office of Disease Prevention

The DOH coordinates a statewide HIV/AIDS prevention and control program. Counseling and testing sites are located in Pierre, Aberdeen, Watertown, Dupree, Rapid City, and Sioux Falls. These sites provide free, confidential counseling and testing for HIV. A toll-free statewide phone number (1-800-592-1861) is available to answer questions about AIDS and HIV during working hours. The national 24-hour AIDS number is 1-800-342-2437.

TUBERCULOSIS

During calendar year 2005, 16 cases of active tuberculosis were reported (Figure 38) to the DOH, including four whites (25 percent) and six American Indians (38 percent).

Figure 38
Tuberculosis in South Dakota,
2001 – 2005



Source: South Dakota Department of Health, Office of Disease Prevention

The overall incidence rate was 2.1 per 100,000; with an incidence of 8.8 for American Indians and 0.6 for whites. Of the cases reported in 2005, 9 were female (56 percent) and 7 were male (44 percent).

The DOH's goal is the elimination of tuberculosis in South Dakota. The objective of the State Tuberculosis Elimination Advisory Committee was to reduce the incidence of tuberculosis in South Dakota to no more than 3.5 cases per 100,000 population by the year 2010. This overall target has been reached, including the special objective for the American Indian population which is 15 cases per 100,000. The Healthy People 2010 target is 1.0 new case of tuberculosis per 100,000 per year.

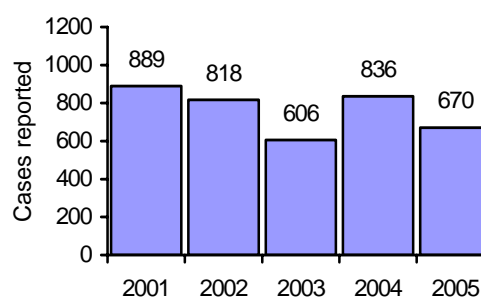
The occurrence of tuberculosis in young children is of special concern. Each child case represents a failure to stop transmission of infection and a failure to prevent the emergence of disease in an unexposed person. Fortunately, there were no cases of tuberculosis reported in 2005 in children less than five years of age.

There was one case of tuberculosis reported with single drug resistance in 2005. The only case of multi-drug resistant tuberculosis was reported in 1991.

In 2005, there were 670 reports of positive skin tests for tuberculosis infection (Figure

39). Since no data is collected on negative tests, it is not known how many people were skin tested overall. Skin testing is targeted to detect persons with latent tuberculosis infection and disease who would benefit from treatment. A positive skin test indicates that the person has been exposed to active tuberculosis, and an evaluation must follow.

Figure 39
Latent Tuberculosis Infection (Positive Skin Tests) in South Dakota, 2001-2005



Source: South Dakota Department of Health, Office of Disease Prevention

The DOH has an aggressive tuberculosis control strategy that includes contact investigations and rigorous oversight of patient treatment adherence. The challenge to eliminate tuberculosis in South Dakota rests with preventing and monitoring disease activation among the elderly, the American Indian population, and foreign-born persons.

FOODBORNE and DIARRHEAL DISEASES

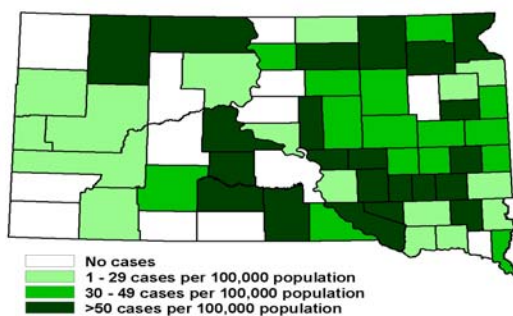
Campylobacteriosis *Campylobacter* has been the most commonly isolated enteric bacteria in South Dakota since 1999 (Table 73). In 2005, there were 244 cases of campylobacteriosis, which is an incidence of 31.4 cases per 100,000 population. This was a 30 percent increase over the five-year baseline. This increase suggests a change in

the transmission or the detection of campylobacteriosis in the state. Eighteen percent of the cases were in children less than five years old. Counties with the highest incidence (cases per 100,000 population) included Hyde (186), Aurora (172), Buffalo (143), Jerauld (140), Tripp (115), Edmunds (97), Jones (97), Mellette

(96), Douglas (91), McCook (84), Stanley (71), Hamlin (70), Corson (69), Day (69), Perkins (66), Charles Mix (65), Davison (53), Hanson (53), Brown (52), and Roberts (50) (Figure 40).

Campylobacter is a spiral-shaped Gram negative bacteria that can cause diarrhea, often bloody, abdominal pain, vomiting, fever, nausea, and malaise. Most cases of campylobacteriosis are relatively mild, lasting one to two days. Some cases, however, are more severe and relapses occur in about 20 percent of patients.

Figure 40
Campylobacteriosis Incidence Rates by County, South Dakota, 2005



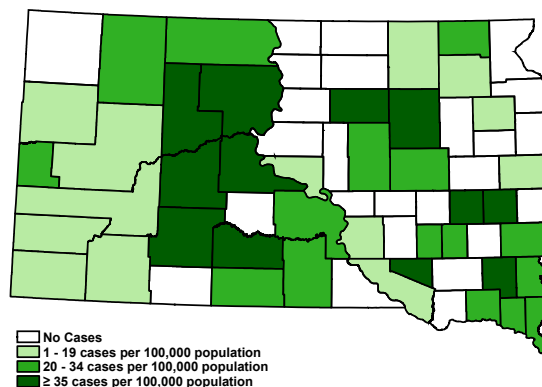
Source: South Dakota Department of Health, Office of Disease Prevention

associated deaths are rare, occurring primarily in infants, the elderly, and immunocompromised individuals.

Salmonellosis There were 160 culture-confirmed cases of salmonellosis reported in South Dakota in 2005, which was an increase of 22 percent from the five-year median. Complications may include convulsions, neonatal septicemia, extraintestinal infection, arthritis, Guillain-Barré syndrome, or Reiter syndrome. *Campylobacter*

incidence of 20.6 cases per 100,000 population. This was an increase of 22 percent from the five-year median. Nineteen percent of the cases were reported in children less than five years old. Counties with the highest incidence (cases per 100,000 population) included Miner (193), Faulk (126), Douglas (121), Spink (101), Haakon (52), Dewey (49), Ziebach (38), Lake (36), Jackson (35), Stanley (35), and Turner (35) (Figure 41).

Figure 41
Salmonellosis Incidence Rates by County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Table 77 shows the most commonly isolated serotypes of *Salmonella* over the past 11 years in South Dakota. *S. typhimurium* was the most commonly isolated serotype in 2005.

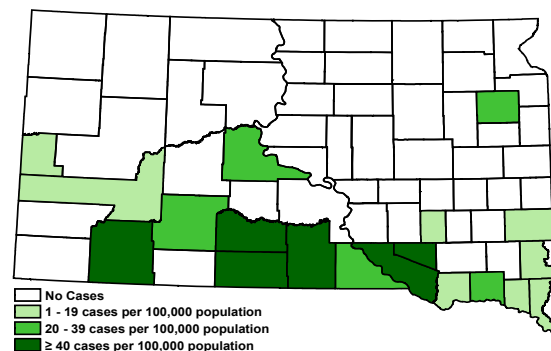
Table 77
Most Common Salmonella Serotypes, South Dakota, 1994-2005

Salmonella serotype	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total	Percent
Agona	2	3	4	2	2	0	2	0	0	0	0	0	15	1%
Bovismorbificans	1	2	0	0	2	1	0	1	0	0	0	0	7	0%
Braenderup	0	0	0	1	0	3	3	2	0	3	1	6	18	1%
Brandenburg	0	1	1	0	0	0	0	0	0	0	0	1	3	0%
Enteritidis	68	23	11	8	8	8	9	12	14	15	20	24	220	15%
Hadar	2	3	1	4	4	0	7	5	0	7	1	1	35	2%
Heidelberg	1	3	6	1	6	6	11	22	10	3	6	6	81	5%
Infantis	2	1	1	1	0	0	1	2	1	1	0	9	19	1%
Litchfield	0	0	0	0	1	2	1	0	2	1	0	3	10	1%
Montevideo	2	2	1	3	2	2	1	1	4	3	6	5	32	2%
Muenchen	0	2	0	3	2	4	2	1	3	2	5	2	26	2%
Muenster	0	0	0	0	2	1	2	1	2	0	0	0	8	2%
Newport	2	2	1	9	8	8	5	6	11	9	9	10	80	5%
Oranienburg	0	0	2	1	3	2	0	1	1	2	5	5	22	1%
Paratyphi A	0	0	0	0	1	0	1	0	0	0	0	0	2	0%
Paratyphi B	0	1	1	0	4	2	1	4	0	5	3	3	24	2%
Poona	1	0	2	0	0	1	0	0	0	0	1	1	6	0%
Reading	0	4	0	0	2	0	0	0	0	0	1	0	7	0%
Saint Paul	1	1	0	0	1	3	1	1	1	5	1	0	15	1%
Senftenberg	0	0	2	0	0	0	1	1	0	0	0	0	4	0%
Thompson	2	3	39	3	3	2	1	2	2	0	1	2	60	4%
Typhimurium	36	30	24	28	61	40	28	48	36	50	60	49	490	32%
Typhimurium-Copenhagen	3	5	7	15	3	2	5	0	0	0	1	0	41	3%
Other serotypes	20	22	16	11	17	13	18	41	34	25	35	33	285	19%
Total	143	108	119	90	132	100	100	151	121	131	156	160	1510	100%

Source: South Dakota Department of Health, Office of Disease Prevention

Shigellosis In 2001, South Dakota experienced a wide-scale outbreak of shigellosis. There were 716 cases of shigellosis reported, representing a 2,210 percent increase over the five-year median. This was an incidence of 95 cases per 100,000 population, the highest in the USA. Twelve counties in the central-southwest portion of the state were most affected. In 2003 and 2004, shigellosis cases decreased back to baseline with only 17 and 13 cases respectively. In 2005, however, the number of cases increased substantially to 131 representing a 671 percent increase over the five-year median. This was an incidence rate of 16.9 cases per 100,000 population. Figure 42 shows shigellosis incidence rates (cases per 100,000 population) by county in South Dakota for 2005.

Figure 42
Shigellosis Incidence Rates by County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Shigella sonnei was the most common species isolated since 1993 (67 percent),

while *S. flexneri* was the second most common (Table 78).

Shigellosis is an intestinal infection causing diarrhea (may be mucoid or bloody), fever, nausea, vomiting, and abdominal cramps. Complications, such as severe dehydration or seizures, may occur, especially among infants.

Table 78
Most Common Shigella Serotypes,
South Dakota, 1993-2005

Year	S. flexneri	S. sonnei	S. boydii	Species Unk	Total
1993	31	68	1	11	111
1994	16	163	0	28	207
1995	35	128	0	37	200
1996	28	55	0	11	94
1997	16	13	0	2	31
1998	12	16	0	5	33
1999	13	4	0	1	18
2000	2	2	0	4	8
2001	6	508	1	201	716
2002	5	113	0	39	157
2003	3	9	0	5	17
2004	0	6	4	2	12
2005	1	70	5	55	131
Total	168	1155	11	401	1736
Percent	10%	67%	1%	23%	100 %

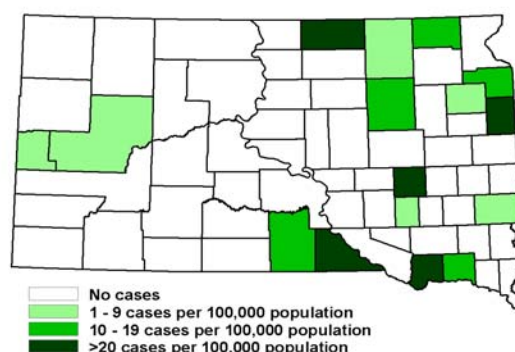
Source: South Dakota Department of Health, Office of Disease Prevention

Shigella is transmitted by the fecal-oral route (human feces), with a very small dose (10 organisms) sufficient to cause illness. Following exposure, illness usually follows after a one to four day incubation period. Transmission is typically person-to-person within families, child day care centers, and residential living services for the developmentally disabled. Food may also be contaminated by people not washing their hands properly. Shigellosis may also be transmitted by contaminated drinking or recreational water, anal intercourse, houseflies, or by fecally contaminated objects.

Enterohemorrhagic *Escherichia coli*

Escherichia coli O157:H7 infection has been voluntarily reportable in South Dakota since 1994, and legally reportable since 1996. During 2005 there were 29 cases of *E. coli* O157:H7 reported, representing a 29 percent decrease from the five-year median. This was an incidence rate of four cases per 100,000 population. Forty-eight percent of the cases were in children less than 15 years of age. There was one case of HUS associated with *E. coli* infection. Figure 43 shows *E. coli* O157:H7 incidence rates (cases per 100,000 population) by county in South Dakota for 2005.

Figure 43
***E. coli* O157:H7 Incidence Rates by**
County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

E. coli O157:H7 is only one of several enterohemorrhagic, shiga-toxin producing serotypes of the bacteria. There was also one case of enterohemorrhagic *E. coli* (non-O157 serotype) reported.

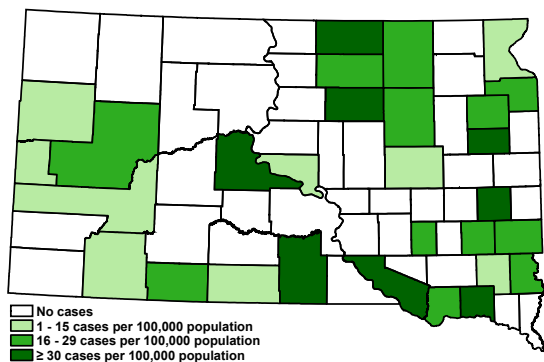
E. coli O157:H7 often causes severe bloody diarrhea and abdominal cramps. The illness usually resolves in five to 10 days. In some individuals, however, complications may involve severe hemorrhagic colitis, hemolytic uremic syndrome (HUS), thrombotic thrombocytopenic purpura, and even death.

E. coli O157:H7 is transmitted by meat, water, fresh vegetables or other foods contaminated by the intestinal contents or

manure of cattle, sheep, deer, and other animals. Human infection can be prevented by proper slaughtering methods, thorough cooking of meats, proper kitchen hygiene, pasteurization of fruit juices and dairy products, and handwashing after contact with cattle or manure. Individuals with *E. coli* O157:H7 infections are restricted from commercial food handling, child day care, or patient care until two successive negative fecal samples are collected.

Giardiasis Giardiasis is a gastrointestinal disease caused by a protozoan parasite called *Giardia lamblia* (*G. intestinalis*) which is transmitted person-to-person or by contaminated water. During 2005, 118 cases of giardiasis were reported. This represents a 33 percent increase from the five-year median. Thirty-five percent of the cases were from children less than 15 years of age. Counties with the highest incidence (cases per 100,000 population) included Faulk (168), McPherson (76), Stanley (71), Yankton (55), Lake (36), Hamlin (35), and Tripp (33) (Figure 44).

Figure 44
Giardiasis Incidence Rates by County, South Dakota, 2005

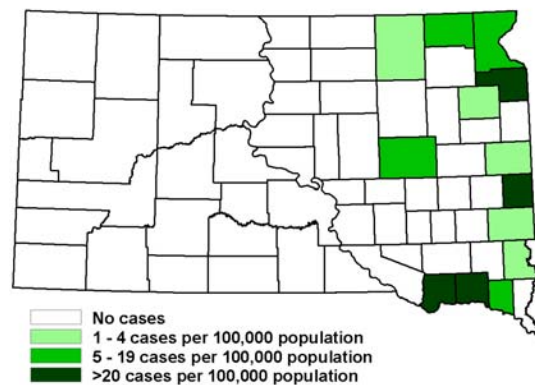


Source: South Dakota Department of Health, Office of Disease Prevention

Cryptosporidiosis Cryptosporidiosis is a protozoan diarrheal disease transmitted by cattle and human feces. The disease has been reportable since 1996. Since then, 244 cases have been reported statewide. In

2005, there were 31 cases reported representing a 26 percent decrease over the five-year median. Forty-five percent of the cases were from children less than 15 years of age. Generally, an increase in reported cases is occurring nationally with outbreaks often being traced to outdoor recreational water sources and contaminated swimming pools. Figure 45 shows cryptosporidiosis incidence rates (cases per 100,000 population) by county in South Dakota for 2005.

Figure 45
Cryptosporidiosis Incidence Rates by County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

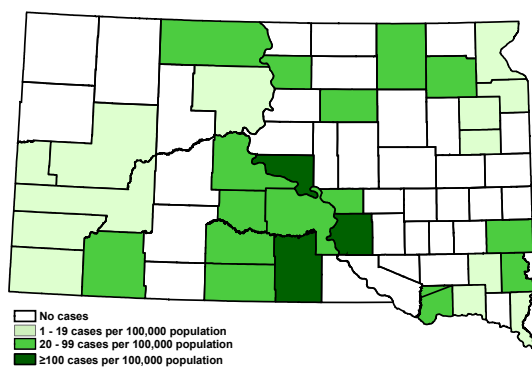
Reportable Disease Outbreaks The Office of Disease Prevention (ODP) investigated one outbreak of Norovirus in 2005.

The Norovirus outbreak occurred in September following a wedding reception with a catered buffet. Thirty-five of the 143 reception attendees became ill over the course of 76 hours with predominant symptoms of nausea, diarrhea, abdominal cramps, and vomiting. Eight of the ill members sought medical treatment but no hospitalizations or deaths occurred. A cohort study failed to statistically implicate any vehicle of transmission. Tests conducted at the State Public Health Laboratory identified Norovirus from 2 of the 4 fecal specimens collected.

PERTUSSIS

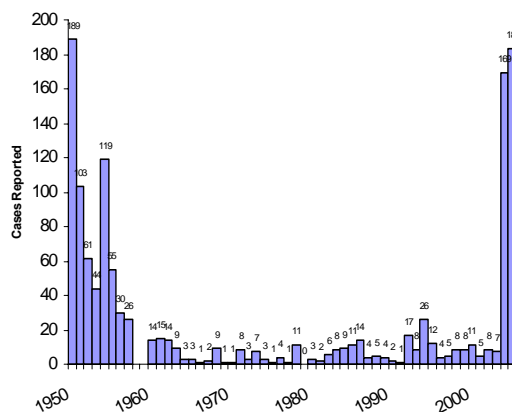
During 2005, a total of 183 cases of pertussis were reported, the highest number since 1950. Pertussis, commonly called whooping cough, is an acute infectious bacterial disease caused by *Bordetella pertussis*. The bacteria produce toxins that inflame and paralyze respiratory cilia causing severe coughing. Pertussis is transmitted by aerosolized droplets of respiratory secretions from infected individuals. In the first half of the twentieth century, pertussis was a common childhood disease and major cause of death. In the 1930s South Dakota averaged 480 pertussis cases reported annually. The pertussis vaccine became available in the 1940s reducing the incidence of the disease. Since 1950 South Dakota has had a median of eight cases per year. During 2005, 183 (23.6 cases per 100,000 population) cases of pertussis were reported in South Dakota (131 confirmed cases and 52 probable cases). This compares to 169 cases reported in 2004. No deaths were reported due to pertussis complications. In the United States, 25,827 pertussis cases were reported in 2004. This is an 88 percent increase over 2003 when 11,647 cases of pertussis were reported nationally.

Figure 46
Pertussis Incidence Rates by
County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Figure 47
Pertussis Cases Reported in South
Dakota, 1950 – 2005



* No data available for 1958 and 1959.

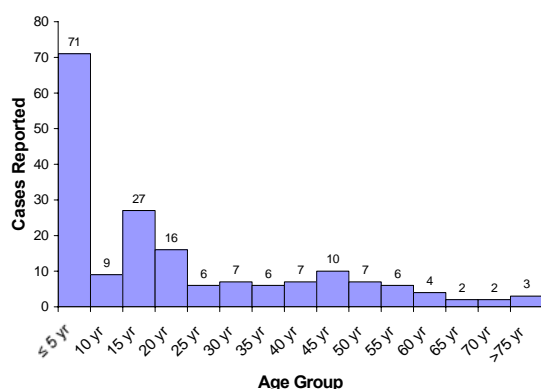
Source: South Dakota Department of Health, Office of Disease Prevention

In addition to the 183 cases, 1,984 individuals were identified as direct contacts to cases or suspects. Individuals who are direct, exposed contacts should receive antibiotic prophylaxis, and if they are symptomatic or suspected of having pertussis, they are recommended for diagnostic testing, isolated and not allowed to attend day care, school or work. Pertussis cases were reported from 31 of 66 South Dakota counties during 2005. The counties with the most cases include Minnehaha (43), Tripp (23), Lincoln (20), Hughes (19), Shannon (13) and Pennington (11). The map in Figure 46 shows the incidence of pertussis by county. Counties with the highest incidence (cases per 100,000 population) include Tripp (379), Brule (154), Hughes (113), Jones (97), and Shannon (95).

Infants and young children are at higher risk of pertussis-associated complications, hospitalization and death. The most common complication is secondary bacterial pneumonia. Eighteen percent of pertussis cases reported were among infants less than

12-months old, 37 percent of cases were five years old or younger, and 58 percent were 14 years old and younger. Pertussis infected youth and adults may expose unprotected infants who are at risk of severe disease and complications.

Figure 48
Age Group of Pertussis Cases, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

Immunization is the best protection for infants and young children. The current pertussis vaccine is an acellular purified, inactivated vaccine (DTaP) licensed only for children six years and younger. The primary series of DTaP consists of four doses. The first three doses are given when the child is two, four, and six months old, and the fourth dose given when the child is 15-18 months old. A fifth booster dose should be given when the child is four to six years old,

before entering school. In 2004 no pertussis vaccines were licensed for persons seven years and older in the United States. This has changed in 2005 with the licensing of adult and adolescent pertussis vaccines.

The current pertussis vaccine has a reported efficacy of 80 percent – 85 percent. Immunity conferred by either vaccination or natural infection wanes over time. Although unvaccinated children are at highest risk for pertussis, children who are fully vaccinated may also develop disease. Pertussis in previously immunized children is usually milder than in unvaccinated children.

The diagnostic gold standard for pertussis is a positive culture result for *Bordetella pertussis*. The preferred specimen is a nasopharyngeal aspirate or a nasopharyngeal swab. Throat or anterior nasal specimens are unacceptable. Molecular polymerase chain reaction (PCR) testing of nasopharyngeal specimens became available at the SD Public Health Laboratory in 2004. The PCR method is more sensitive than the traditional culture method and is likely responsible in part for more cases reported. The direct fluorescent antibody (DFA) stain of a nasopharyngeal swab is unreliable, so this test cannot be used to confirm pertussis. Serologic testing is not acceptable for clinical diagnosis.

INFLUENZA

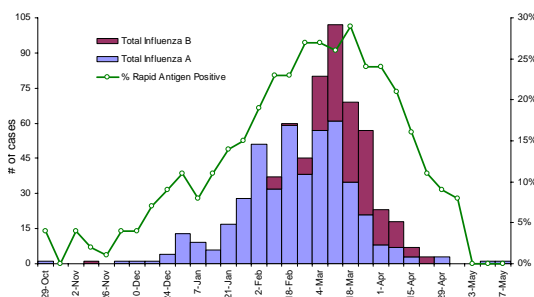
CDC's Division of Viral and Rickettsial Diseases, collaborating with the World Health Organization, collects and analyzes influenza viral isolates and data from state health departments and other surveillance sites. The information presents a state, national and global description of the seasonal influenza outbreak.

SD DOH participates in this international surveillance network through the Office of Disease Prevention (ODP) and South

Dakota Public Health Laboratory (SDPHL). Surveillance for influenza is year-round, but intensifies October through May.

The 2005-06 influenza season was of moderate severity, prolonged in duration, and peaked late season.

Figure 49
Influenza A and B Cases* and Percent
Rapid Antigen Positive
South Dakota 2005-2006 Influenza Season

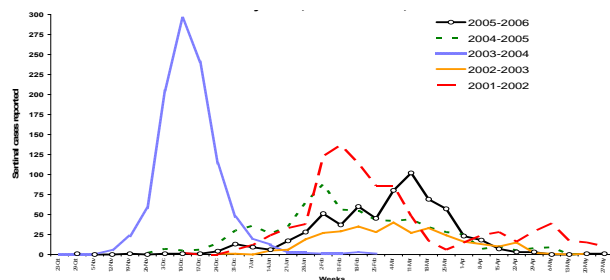


* Confirmed by Culture or DFA
 Source: South Dakota Department of Health, Office of Disease Prevention

The first case of influenza identified in South Dakota was during MMWR Week 43, ending October 29th, 2005. The case, a 23 month-old male from Douglas County, was positive for influenza A by DFA at the University of South Dakota Clinical Virology Laboratory (USD-CVL) in Sioux Falls and later culture confirmed at the SDPHL.

Following the first positive detection, influenza activity remained low until January. Activity then steadily increased in both percentage of positive rapid antigen tests and laboratory confirmed cases until the peak was reached during the first full week of March, MMWR Week 10, ending March 11th. This coincided with the peak in national influenza test data. Thereafter, influenza activity rapidly decreased with less than 10 confirmed cases being reported after April 15th.

Figure 50
2001-2006 Influenza Season,
South Dakota



Source: South Dakota Department of Health, Office of Disease Prevention

A total of 636 influenza isolates, 470 (74 percent) influenza A and 166 (26 percent) influenza B, were reported to SD DOH from SDPHL and USD-CVL in Sioux Falls and Rapid City. Of 470 influenza A isolates, 72 (15 percent) subtyped as A/H3N2, 95 (20 percent) subtyped as A/H3, and 303 (64 percent) were not subtyped. No influenza B isolates were further characterized.

Table 79
Viral Respiratory Reports
SDPHL and USD-CVL,
Oct 2, 2005 – May 27, 2006

	SDPHL [□]	USD-CVL	TOTAL
Influenza A	189*	281	470
Influenza B	46	120	166
Adenovirus	0	98	98
RSV	6	823	829
Parainfluenza-1	8	179	187
Parainfluenza-2	3	23	26
Parainfluenza-3	1	12	13
Parainfluenza-4	0	16	16
TOTAL Tested	462	5668	6130

*72 isolates were Influenza A/H3N2

[□] In cooperation with Influenza Sentinel Sites

Source: South Dakota Department of Health, Office of Disease Prevention

Other viral respiratory pathogens reports included 98 adenovirus, 187 parainfluenza type 1, 26 parainfluenza type 2, 13 parainfluenza type 3, 16 parainfluenza type 4, and 829 respiratory syncytial virus (RSV). The outbreak of RSV began late in November in western South Dakota. The virus then increased in incidence, peaking in the west during MMWR Week 52, ending December 31st, 2006. The virus was also moving eastward and the eastern peak occurred three weeks later on MMWR Week 3, ending January 21st, 2006. The state's peak in RSV incidence occurred during MMWR Week 1, ending January 7th, 2006. RSV remained a significant cause of respiratory illness through the end of March.

Age at time of illness onset and gender data were available for 576 influenza cases. Of 576 cases, 230 (40 percent) were in children <10 years of age. The next most affected age

group was 10 to 19 year olds with 136 cases (24 percent). Of 576 cases, males accounted for 47 percent and females for 49 percent of the influenza morbidity with 4 percent of cases unknown.

Eleven South Dakota residents died due to influenza and its complications during the 2005-06 influenza season. Gender breakdown was 55 percent male and 45 percent female. The median age among those who died was 81, with an age range of 64-101 years. During the season, 129 South Dakotans died from pneumonia or influenza (provisional data).

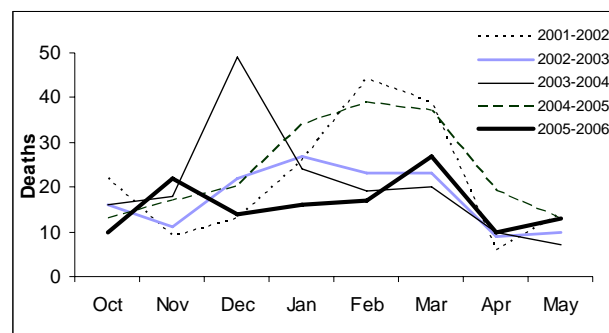
Table 80 Age Distribution of Reported Influenza Cases, South Dakota, 2005-2006 Season		
Age group	#	Percent
0 - 9 yr	230	40%
10 - 19 yr	136	24%
20 - 29 yr	37	6%
30 - 39 yr	39	7%
40 - 49 yr	27	5%
50 - 59 yr	30	5%
60 - 69 yr	20	3%
70 - 79 yr	25	4%
80 - 89 yr	26	5%
90+ yr	6	1%
TOTAL	576	100%

Source: South Dakota Department of Health, Office of Disease Prevention

National Influenza Surveillance Data

The percentage of positive influenza tests and total number of isolates testing positive increased steadily starting in December and peaked in early March during Week 10, ending March 11th.

Figure 51
Pneumonia and Influenza Mortality by
Month and Influenza Season



Source: South Dakota Department of Health, Office of Disease Prevention

A total of 135,973 respiratory specimens were tested for influenza viruses; 17,068 (13 percent) were positive, 13,857 (81 percent) were influenza A and 3,211 (19 percent) were influenza B. Among the influenza A isolates subtyped 93 percent were influenza A/H3N2, and 7 percent were influenza A/H1N1. (Provisional data)

The Centers for Disease Control and Prevention (CDC) guidelines for the 2005-06 season are published in the *Prevention and Control of Influenza* MMWR on July 29th, 2005, Vol. 54, No. RR-8, <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5408a1.htm>.

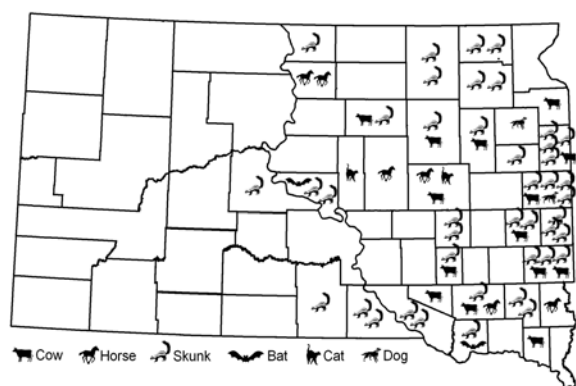
The 2005-06 trivalent vaccine virus strains included: A/California/7/2004 (H3N2)-like, A/New Caledonia/20/99 (H1N1)-like, and B/Shanghai/361/2002-like. Results from the 2005 Behavioral Risk Factor Surveillance System (BRFSS) showed South Dakota ranking 2nd in the nation with 76.3 percent of individuals aged ≥ 65 years receiving influenza vaccination. The survey also showed the state ranking 22nd in pneumococcal vaccination coverage with 66.3 percent of individuals in that age group receiving vaccine.

RABIES

Rabies is a fatal, viral disease affecting the central nervous system. Although rabies is fatal, it is preventable. Rabies is enzootic in South Dakota and the skunk is the primary reservoir. Rabies may be transmitted to pets, livestock, or humans by infectious saliva, usually through bites.

In 2005, 732 animals were submitted for rabies testing with 68 animals testing positive. This was a 28 percent decrease from the previous year, 2004, when 94 animals tested positive. The 68 rabies positive animals included 44 wild animals (42 skunks and 2 bats) and 24 domestic animals (14 cattle, 6 horses, 2 cats and 2 dogs) (Figure 52). There were no human rabies cases in South Dakota in 2005. Our last human case was in 1970.

Figure 52
Animal Rabies in South Dakota, 2005

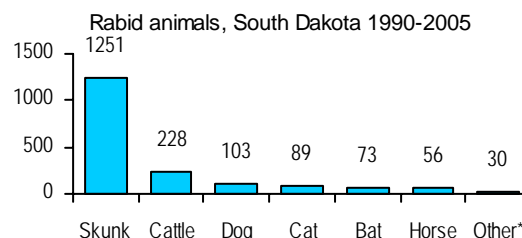


Source: South Dakota Department of Health, Office of Disease Prevention

In 2005 rabid animals were detected in 32 South Dakota counties. Animals were submitted for testing from all counties except Dewey, Jones, Mellette, and Ziebach. From 1990 through 2005, there were 15,893 animals tested for rabies in South Dakota, 1,830 of which tested positive (12 percent). During these years animals were submitted for testing from all counties, and rabid animals were detected in all counties, except Bennett, Shannon, Todd, and Ziebach.

Minnehaha County submitted the most animals for testing (2,636) and Ziebach County submitted the fewest (4).

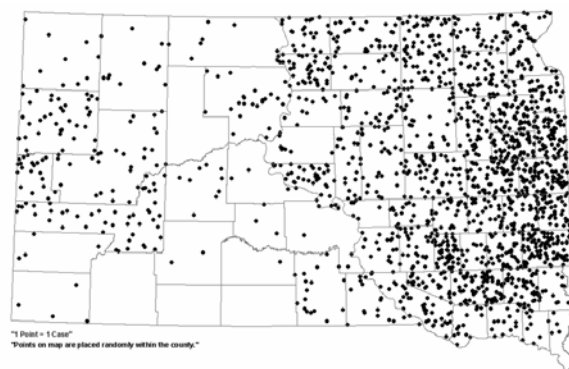
Figure 53
Rabid Animals in South Dakota, 1990-2005



Source: South Dakota Department of Health, Office of Disease Prevention

Since 1990, 27 percent of rabid animal cases in South Dakota have been domestic animals. Rabid livestock included 228 cattle, 56 horses, 6 sheep, 3 pigs, and 2 goats. There have also been 103 rabid dogs and 89 rabid cats, many of which were unvaccinated strays (Figure 53). Of the 74 rabid dogs investigated between 1993 and 2005, 1 dog was fully immunized, 62 had never been immunized, 5 were inadequately immunized, and 6 were of unknown vaccination status.

Figure 54
1990-2005 South Dakota Animal Rabies Detections



Source: South Dakota Department of Health, Office of Disease Prevention

The common skunk (*Mephitis mephitis*) is the enzootic rabies reservoir in South

Dakota. Since 1990, 68 percent of skunks tested have been rabid. Bat rabies is also enzootic in South Dakota with 73 positive bats since 1990, 3 percent of 2,157 bats tested.

Rabies is not considered enzootic in other wild animals in South Dakota. Since 1990, however, rabies has been detected in 8 foxes, 3 badgers, 3 raccoons, 2 bison, 1 opossum, 1 shrew, and 1 woodchuck. These other animals are likely spillover rabies following exposure to rabid skunks.

Animal rabies events occur throughout the year in South Dakota, but the most rabies events occur during the spring and summer months.

Nationally there have been 21 human rabies cases since 2000 in the United States, 20 deaths and 1 survival. Fifteen of the human cases (71 percent) have been associated with bat-rabies virus. A Wisconsin teenager survived bat rabies after receiving experimental treatment.

Two laboratories test for rabies in South Dakota: (1) the Animal Disease Research Diagnostic Laboratory in Brookings, and (2) the State Public Health Laboratory in Pierre. Both laboratories use the direct fluorescent antibody (DFA) technique. The case definition of confirmed animal rabies is a positive DFA test, performed preferably on central nervous system tissue, or the isolation of rabies virus in cell culture or in a laboratory animal. Human serum rabies antibody titers on previous vaccinated people may be ordered through the Public Health Laboratory.

Rabies consultations are available from the Office of Disease Prevention, South Dakota Department of Health, 7 days a week. Consultations are based on current Centers for Disease Control and Prevention (CDC) recommendations. We strive to recommend appropriate rabies prevention measures and

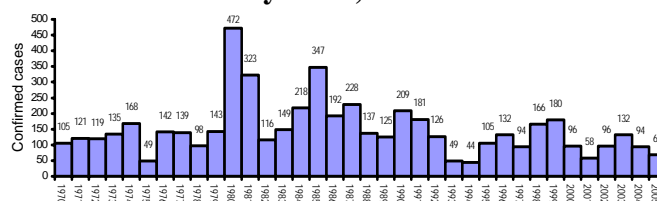
to minimize unnecessary and inappropriate post-exposure testing and prophylactic treatment.

Table 81
Animals Tested and Confirmed Rabies Cases in South Dakota, 1990–2005

Animal	2005		1990 - 2005		
	Pos	Total Tested	Pos	Total Tested	% Pos
Skunk	42	62	1251	1830	68%
Cattle	14	122	228	2170	11%
Dog	2	143	103	2979	3%
Horse	6	25	56	364	15%
Cat	2	218	89	4308	2%
Bat	2	99	73	2157	3%
Fox	0	2	8	89	9%
Sheep	0	3	6	167	4%
Raccoon	0	27	3	838	0%
Pig	0	0	3	29	10%
Badger	0	2	3	22	14%
Goat	0	2	2	39	5%
Bison	0	0	2	11	18%
Opossum	0	1	1	66	2%
Woodchuck	0	1	1	17	6%
Shrew or mole	0	0	1	7	14%
Rodents*	0	3	0	448	0%
Deer, elk, donkey, llama	0	4	0	88	0%
Weasel, ferret, mink	0	2	0	71	0%
Coyote or wolf	0	4	0	57	0%
Squirrel, chipmunk	0	10	0	59	0%
Muskrat	0	0	0	38	0%
Rabbits and hares	0	1	0	16	0%
Bobcat or bear	0	0	0	5	0%
Mountain lion	0	0	0	2	0%
Other animals	0	1	0	16	0%
TOTAL	68	732	1830	15893	12%

*Rodents: rat, mouse, prairie dog, gopher, beaver, porcupine, vole
Source: South Dakota Department of Health, Office of Disease Prevention

Figure 55
Confirmed Positive Cases of Animal Rabies In SD by Year, 1970-2005



Source: South Dakota Department of Health, Office of Disease Prevention

Table 82 Cases of Animal Rabies by County, South Dakota, 1990 – 2005					
County	2005		1990 – 2005		
	Pos	Neg	Pos	Neg	% Pos
Aurora	0	3	27	95	22%
Beadle	3	11	58	250	19%
Bennett	0	1	0	25	0%
Bon Homme	2	6	14	97	13%
Brookings	6	44	78	716	10%
Brown	2	24	77	472	14%
Brule	0	3	22	138	14%
Buffalo	0	1	6	25	19%
Butte	0	6	38	278	12%
Campbell	1	0	22	64	26%
Charles Mix	2	10	38	196	16%
Clark	2	11	39	112	26%
Clay	1	8	7	138	5%
Codington	1	18	59	344	15%
Corson	0	1	7	24	23%
Custer	0	1	4	49	8%
Davison	2	24	47	466	9%
Dav	2	4	53	156	25%
Deuel	5	5	58	267	18%
Dewey	0	0	25	78	24%
Douglas	1	7	25	107	19%
Edmunds	0	3	19	101	16%
Fall River	0	4	4	200	2%
Faulk	2	3	25	63	28%
Grant	1	15	34	230	13%
Gregory	2	7	15	123	11%
Haakon	0	1	9	84	10%
Hamlin	1	10	59	174	25%
Hand	1	4	31	106	23%
Hanson	0	3	14	68	17%
Harding	0	3	11	37	23%
Hughes	3	21	38	334	10%
Hutchinson	3	23	68	306	18%
Hyde	1	5	20	109	16%
Jackson	0	4	2	90	2%
Jerauld	0	9	18	74	20%
Jones	0	0	3	26	10%
Kingsbury	0	7	66	257	20%
Lake	3	14	42	260	14%
Lawrence	0	10	20	190	10%
Lincoln	1	20	14	265	5%
Lyman	0	2	2	63	3%
Marshall	2	3	33	145	19%
McCook	0	7	41	197	17%
McPherson	0	7	35	144	20%
Meade	0	12	29	277	9%
Mellette	0	0	1	18	5%
Miner	0	3	28	106	21%
Minnehaha	5	10	95	2541	4%
Moody	3	7	42	172	20%
Pennington	0	73	46	1181	4%
Perkins	0	3	11	47	19%
Potter	0	1	11	41	21%
Roberts	0	14	47	287	14%
Sanborn	2	2	26	87	23%
Shannon	0	2	0	59	0%
Spink	2	5	28	160	15%
Stanley	1	1	4	26	13%
Sully	0	1	7	19	27%
Todd	0	1	0	91	0%
Tripp	1	12	17	171	9%
Turner	2	13	45	331	12%
Union	0	4	7	145	5%
Walworth	2	21	42	349	11%
Yankton	0	7	17	208	8%
Ziebach	0	0	0	4	0%
South Dakota	68	664	1830	14063	12%

Source: South Dakota Department of Health, Office of Disease Prevention

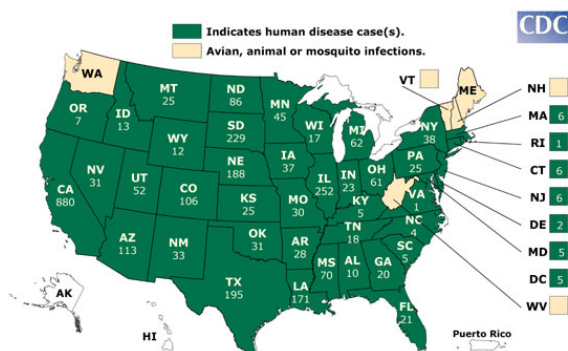
West Nile Virus

West Nile virus (WNV) was first detected in the Western Hemisphere in 1999 in New York City. The virus spread west across the continent, reaching South Dakota in 2002. West Nile virus is now endemic in much of North America, including South Dakota.

2005 was the seventh year of WNV transmission in North America and the fourth transmission season in South Dakota. In 2003, North America experienced the largest ever recorded arboviral epidemic. The 2003 epidemic was centered in the Great Plains region with South Dakota having the third most WNV cases and the highest incidence of neuroinvasive disease (NID) in the country. The 2004 epidemic was centered in the Southwestern United States.

Nationally in 2005 there were 3,000 human WNV cases disease reported, with 119 deaths. The WNV cases included 1,294 NID cases (encephalitis or meningitis), 1,607 with WNV fever, and 99 other diagnostic status.

Figure 56
West Nile Human Deaths/Cases, United States, 2005



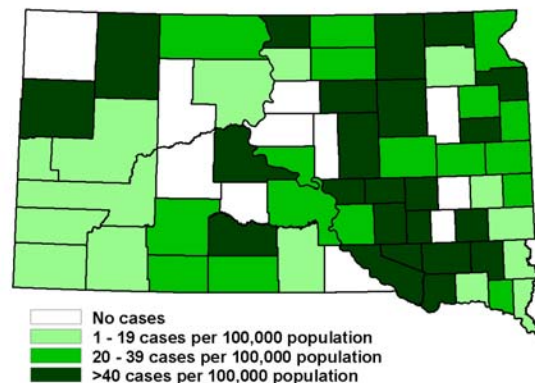
Source: South Dakota Department of Health, Office of Disease Prevention

In South Dakota, there were 229 human cases of WNV disease and two deaths reported in 2005. Of these cases 35 were diagnosed with neuro-invasive disease (NID 12 percent) and 194 had West Nile fever (88

percent), a milder form of the disease. No cases were reported to have had acute flaccid paralysis. By contrast, in 2003 there were 1039 human WNV cases, including 170 cases of NID and 869 cases of WN fever in South Dakota. Of these cases, 19 were reported with acute flaccid paralysis and 14 died of WNV-associated illness.

The overall incidence of West Nile disease in 2005 was 29.5 cases per 100,000 population. Figure 57 shows the incidence by county. The high incidence counties were generally in the north and southeast regions of the state. The overall statewide incidence of WNV NID was 4.5 case per 100,000.

Figure 57
Human West Nile Disease Incidence
Rates by County, South Dakota, 2005



Source: South Dakota Department of Health, Office of Disease Prevention

The screening of donated blood has enhanced the safety of the blood supply and prevented many cases of WNV disease. In South Dakota 18 viremic blood donations were detected and removed from the blood supply in 2005.

During WNV season individuals with severe or unusual headaches should seek medical care as soon as possible. Physicians are encouraged to have a high index of suspicion for WNV disease. Free WNV testing is available at the South Dakota

Public Health Laboratory for ill suspects. We do not encourage testing mildly ill patients or individuals who wish to know if they have an antibody titer. Serum or CSF

should be submitted to the Public Health Laboratory.

OTHER INFECTIOUS DISEASES

***Neisseria meningitidis* invasive disease**

There were four cases of invasive *Neisseria meningitidis* disease reported in 2005. This is an incidence of 0.5 cases per 100,000 population. The Healthy People 2010 target was 1.0 new cases of meningococcal disease per 100,000 population.

Vector borne diseases in South Dakota in 2005 included five cases of Rocky Mountain spotted fever, eight cases of tularemia, two cases of Lyme disease, and two cases of hantavirus pulmonary syndrome. There were no reported cases of Malaria in 2005. Although there were cases of prairie dog plague reported in southwest South Dakota, there were no human cases detected in 2005.

Other Infectious Diseases There were 26 cases of invasive Group A *Streptococcus*, 26 cases of invasive Group B *Streptococcus*, and three cases of invasive drug resistant *Streptococcus pneumoniae* reported in 2005. There were also 136 cases of chicken pox and 47 cases of invasive Methicillin-Resistant *Staphylococcus aureus* (MRSA) in 2005. Additionally, 18 cases of non-meningococcal bacterial meningitis, two cases of Streptococcal Toxic Shock Syndrome, and 21 cases of legionellosis, including an outbreak in Rapid City. There were no reported cases of listeriosis in 2005.

